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Abstract

CORROSION RESISTANCE OF CONSTRUCTION MATERIALS IN ALKALI METALS

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It is shown in this report that alkali metals (sodium, sodium-potassium alloys, lithium) used as liquid-metal coolants give an opportunity to solve complicated problems of the high-temperature atomic engineering in many aspects.

The possibility of designing the reactors with liquid-metal coolant is defined to a great extent by the profound study of corrosion resistance of the circuit construction materials.

Experimental results of the corrosion resistance tests in alkali metals operated at high temperature are given.

The tests were carried out under static and dynamic conditions.

Investigations of corrosion processes were carried out by different methods.

The plot shows the tendency of some heat-resisting steels and alloys to the mass transfer in the non-isothermal sodium flow.

Experimental data on molybdenum and niobium corrosion as a function of oxygen content in sodium are given.

The experimental results of the carbon transfer mechanism study in sodium are described.

The conclusions are drawn about the influence of different factors on the mechanism of this process.

The data characterizing the peculiarities of corrosion of construction materials in lithium are given.

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